

DESCRIPTION OF A NEW SPECIES OF *ALGAROBIOUS*
BRIDWELL (COLEOPTERA: BRUCHIDAE)

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ABSTRACT

Description of a new species of Bruchidae, *Algarobius bottimeri*, is given. This species is found in at least 60 counties in southern and central Texas, in northeastern Mexico, and has been introduced into Hawaii. Characters to separate it from *Algarobius prosopis* LeConte are given.

Because of the need for a name to be used in various biological studies on insects of *Prosopis*, the following description is provided. A more complete analysis of this genus is in preparation.

Algarobius bottimeri Kingsolver, NEW SPECIES

Bruchus prosopis LeConte, 1858:77 (of authors, not LeConte, 1858:77, especially records from Texas and Hawaii)

Algarobius prosopis (of authors, in part.)

Color of male: Integument dark red, except eyes and humeri black; vestiture of gray, brassy, yellowish and piceous slender setae; pronotum yellowish in appearance but with narrow, median condensation of gray setae, pleura gray; elytra mottled gray and brassy with faint lateral maculae; pygidium mottled yellowish and gray, with median condensation of gray setae and faint spot either side of median line; venter evenly clothed with gray setae.

Color of female: Integument dark red to piceous, dorsal pattern of pronotum and elytra more strongly pronounced than in male; pronotal disk usually of bronzy appearance with median gray stripe and pleura gray; elytra mottled bronzy and gray with median sutural spot dark brown, third interval gray with small brown spot just behind middle; medio-lateral maculae brown reaching fifth interval, intervals 2, 4, 6, and 8 with elongated, brown apical spots; humeri piceous; pygidium with 2 elongated black sulci flanking darker median stripe (Fig. 5).

Head length (dorsal margin of eye to apex of labrum) slightly less than width across eyes; interocular width $\frac{3}{8}$ width across eyes; ocular sinus $\frac{1}{2}$ length of eye; posterior margin of eye with narrow fringe of gray setae, frontal carina faintly indicated in some specimens but usually represented by impunctate median line; vertex and frons with fine, linear, setose punctures; clypeus finely, densely punctate; labrum impunctate. Antenna (Fig. 7) not sexually dimorphic.

Pronotum campaniform, disk evenly convex with 4 slight depressions on basal margin; punctation fine, unevenly distributed, nearly concealed by vestiture.

Scutellum elongate, 2x as long as width at base, apex bidentate (Fig. 3).

Elytra together about 2x as long as wide; lateral margins arcuate,

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disk evenly convex; humeri not prominent, bare, finely scabrous; striae regularly placed, not laterally distorted at bases, faintly impressed and nearly concealed by vestiture, striae 2, 3, 4, 5, and usually 6 each with a small, basal denticle.

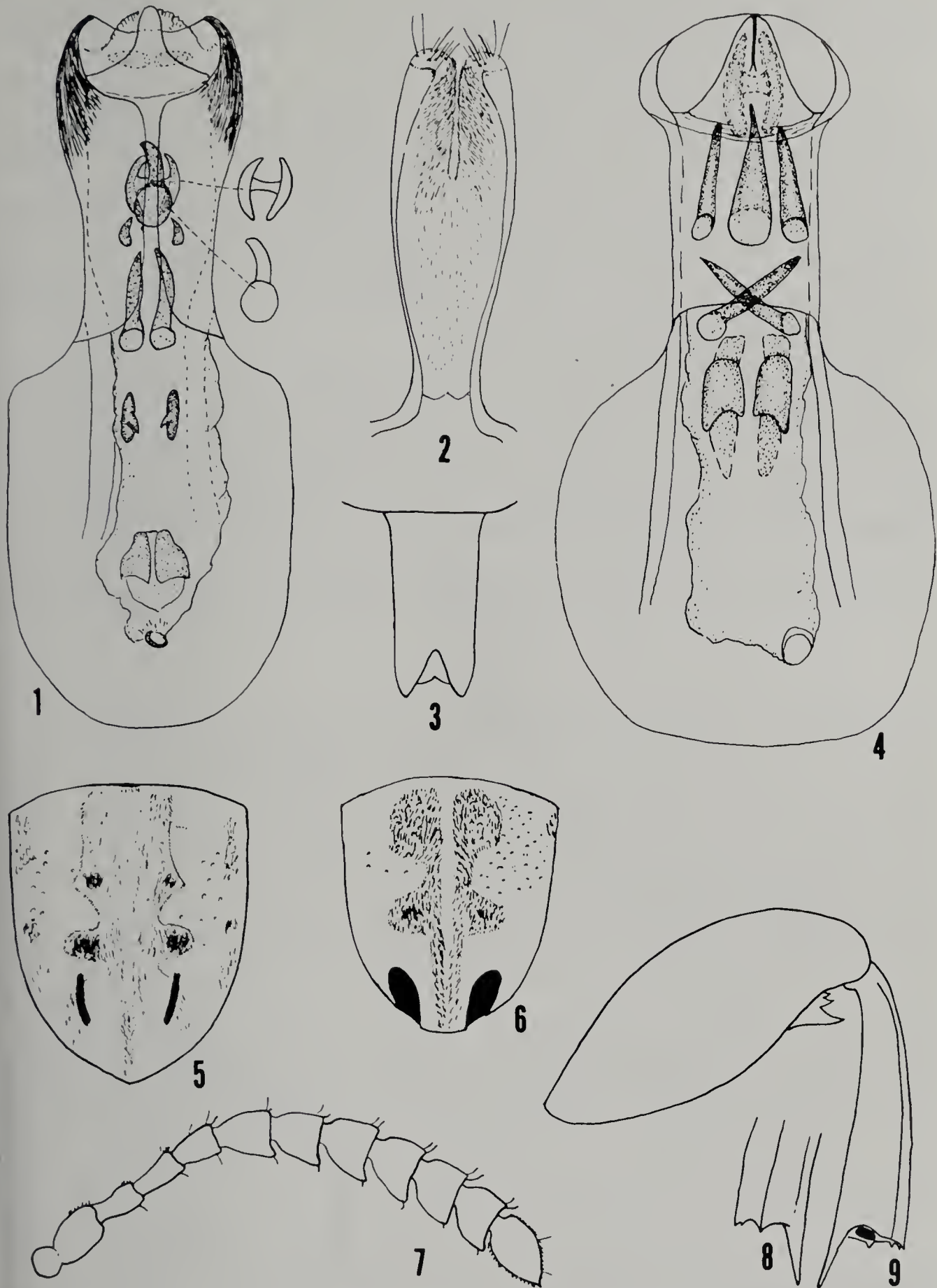


Fig. 1-3, 5, 7-9: *Algarobius bottimeri*, n. sp. 1) ♂ genitalia, median lobe, ventral. 2) lateral lobes, ventral. 3) scutellum. 5) ♂ pygidium. 7) antenna. 8) hind tibia, apex, lateral. 9) hind femur and tibia, mesal. Figs. 4, 6: *Algarobius prosopis* LeConte. 4) ♂ genitalia, median lobe, ventral. 6) ♀ pygidium.

Legs: Front and middle legs not modified, hind leg as in Fig. 8, 9.

Pygidium of ♂ with postero-dorsal face finely, irregularly punctate, slightly convex, reflexed anteriorly at apex fitting shallow emargination of terminal sternite of abdomen; of female with surface punctation as for ♂ but with two longitudinal, polished, black or darkened sulci in apical 1/2 removed from apical margin by a distance equal to their length, pygidium slightly tumescent between sulci (Fig. 5).

Male genitalia (Fig. 1, 2): Median lobe with apex emarginate, lateral margins thickened, massive; ventral valve subtriangular; armature of internal sac as illustrated, H-shaped sclerite characteristic of genus; lateral lobes flattened (Fig. 2), setate apically, cleft 1/3 their length.

Measurements: Body length, apex of pronotum to apex of pygidium: 2.75-4.25mm; body width at widest measurement: 1.50-2.25mm.

Holotype male: TEXAS: Mission, Bentsen St. Pk. (Hidalgo Co.), 10-11-VIII-63, P. J. Spangler [USNM Type 70389]. *Allotype female* and 433 male and female paratypes, same data.

Additional specimens examined (not paratypes): many specimens from the following counties in TEXAS: Aransas, Atascosa, Bee, Bexar, Blanco, Brewster, Briscoe, Brooks, Brown, Cameron, Cole, Coleman, Collingsworth, Comal, Concho, Crockett, Dallas, Denton, Dickens, Dimmit, Duval, Eastland, Edwards, Floyd, Frio, Garza, Gillespie, Glasscock, Gonzales, Hall, Hidalgo, Howard, Hudspeth, Jim Wells, Jones, Karnes, Kenedy, Kerr, Kin-

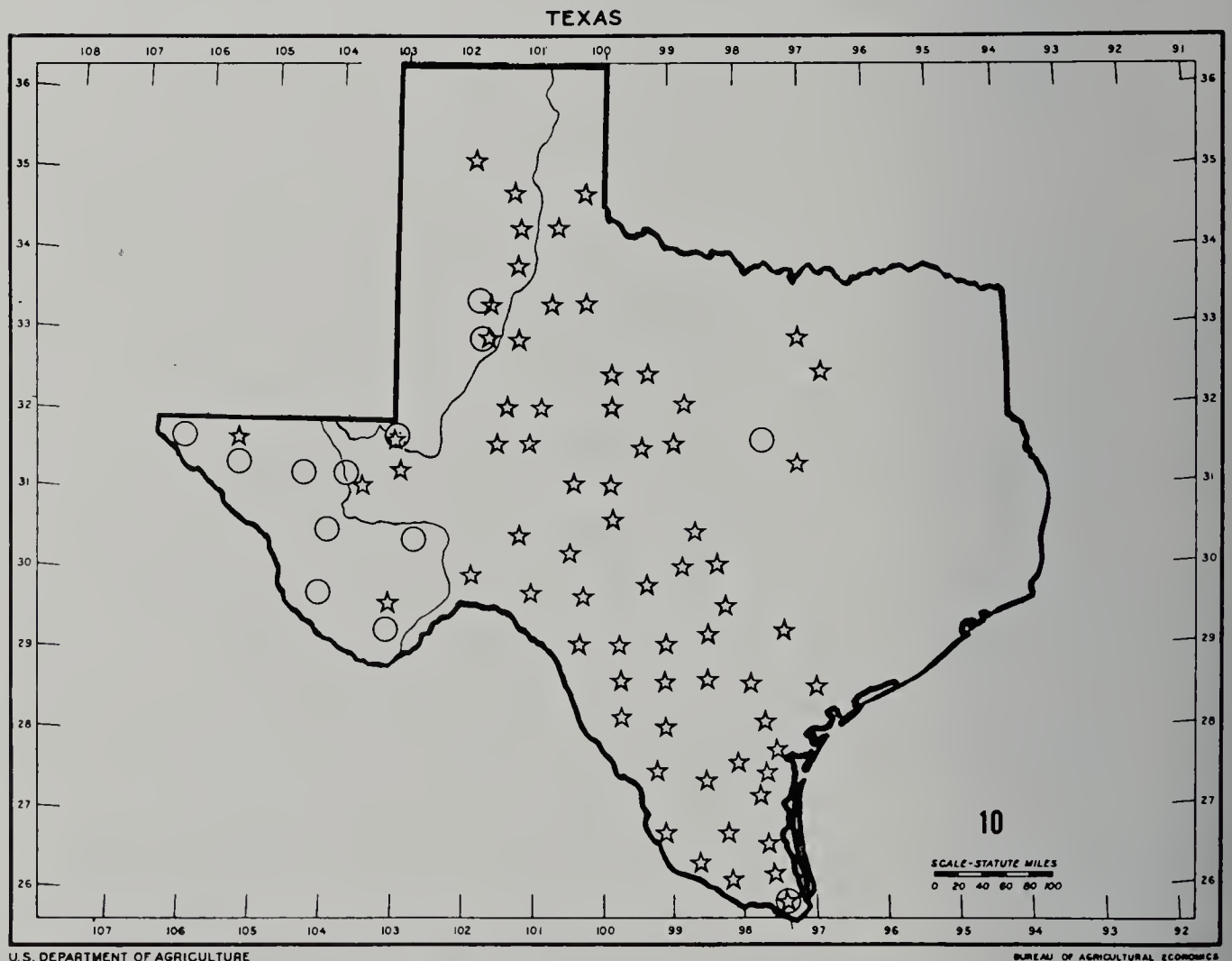


Fig. 10: Known distribution of *Algarobius bottimeri*, n. sp., and *A. prosopis* LeConte in Texas. Line indicates western limits of Edwards Plateau. Stars indicate distribution of *A. bottimeri*, open circles distribution of *A. prosopis*.

ney, Kleberg, LaSalle, Llano, Lubbock, Lynn, McLennan, Medina, Menard, Mitchell, Nueces, Reeves, San Patricio, Shackelford, Starr, Sterling, Sutton, Taylor, Terrell, Tom Green, Uvalde, Val Verde, Victoria, Ward, Webb, Willacy, Zapata, Zavala. NEW MEXICO: Lea Co. MEXICO: NUEVO LEON: Liñares, Monterrey; TAMAULIPAS: Guemes, Ciudad Victoria. HAWAII: MAUI: Lahaina; KAHOOLAWE; OAHU: Honolulu, Mt. Kaala, Pearl City, Koko Head, Wailupe, Koolau Mts. Approximately 3000 specimens were at hand, collected from February through November.

Paratypes are deposited in the following institutional and private collections: American Museum of Natural History, New York; University of Arizona, Tucson; Bernice P. Bishop Museum, Honolulu; British Museum (NH), London; Canadian National Collections, Ottawa; California Academy of Sciences, San Francisco; Carnegie Museum, Pittsburg; Cornell University, Ithaca; Field Museum of Natural History, Chicago; Charles Griffin, Corpus Christi; Henry Howden, Ottawa; C. D. Johnson, Flagstaff; University of Kansas, Lawrence; Museum of Comparative Zoology, Cambridge, Mass.; Museum National d'Histoire Naturelle, Paris; Naturhistoriska Riksmuseum, Stockholm; Texas A & M University, College Station; Texas Tech University, Lubbock; U. S. National Museum, Washington, D. C.; G. B. Vogt, Washington, D. C.

I wish especially to thank Mr. Larry J. Bottimer, Tow, Texas, for so generously turning over to me many specimens which he reared. These are now part of the Canadian National Collection, Ottawa. I am naming this species for him in recognition of the important contributions he has made to the knowledge of bruchid biology.

DISCUSSION

This species has been identified as *Algarobius prosopis*, but *prosopis* is in a different species group. I have been unable to find any character other than male genitalia to separate the ♂ of *bottimeri* from the ♂ of *prosopis*; however, it is not necessary to clear the genitalia in order to distinguish them. Specimens need only to be relaxed and the median lobe pulled out sufficiently to examine the condition of the apex of the median lobe: a dark, massive, emarginate form in *bottimeri* contrasted with a lightly sclerotized, hoodlike form in *prosopis* (Cf. Fig. 1 and 4). Identification using the armature of the internal sac requires clearing of the median lobe in KOH.

Identification of females from localities north of the Rio Grande can be made by comparing the pygidium with Fig. 5 and 6. In *prosopis*, the pygidial sulci are adjacent to the apical margin (Fig. 6), but in *bottimeri*, the sulci are separated from the apical margin by a distance about equal to their own length (Fig. 5).

Algarobius bottimeri is most closely related to an undescribed species from Oaxaca, Mexico, whereas *prosopis* belongs to a group of species whose range extends through the central plateau of Mexico.

The genus *Algarobius* apparently is restricted in host relationships to *Prosopis*, commonly known as mesquite. Opinions vary among botanists as to which names should be used for the species and varieties of *Prosopis* in North America, but Johnston (1962) is of the opinion that *Prosopis glandulosa* var. *glandulosa* should be applied to a form found

over most of Texas extending west to the limits of the Edwards Plateau. In comparing the range of *A. bottimeri* with that of the variety *glandulosa*, the coincidence of range is striking (Fig. 10). In addition, the eastern limits of the range of *A. prosopis* overlaps that of *bottimeri* in a narrow band extending from the middle of the Texas panhandle to the Big Bend roughly along the Plateau limits. According to Johnston (1962, map, p. 73), *Prosopis glandulosa* var. *torreyana* extends eastward approximately to the same limits. Not enough localities are known from Mexico to detect any distribution patterns south of the Rio Grande. The Hawaiian records obviously result from the introduction of *Prosopis* into the Islands in the early twentieth century for cattle feed. Bridwell (1929:43) recognized that the species he and others had listed as *Bruchus prosopis* was undescribed. Since no one described it as new, subsequent workers in Hawaii have continued to use the names *Bruchus prosopis* or *Algarobius prosopis*.

LITERATURE CITED

- BRIDWELL, J. C. 1920. Insects injurious to the Algaroba feed industry. Hawaiian Planter's Rec. 22(6):337-343.
- . 1929. The cowpea bruchid (Coleoptera) under another name—a plea for one kind of entomological specialist. Proc. Ent. Soc. Washington 31(2):39-49.
- JOHNSTON, M. C. 1962. The North American mesquites, *Prosopis* sect. *Algarobia* (Leguminosae). Brittonia 14(1):72-90.
- LECONTE, J. L. 1858. Descriptions of new species of Coleoptera, chiefly collected by the United States and Mexican Boundary Commission, under Major W. H. Emory, U. S. A. Proc. Acad. Nat. Sci. Philadelphia 10:59-89.

LITERATURE NOTICE

- KARREN, J. B. 1972. A revision of the subfamily Chlamisinae of America North of Mexico (Coleoptera:Chrysomelidae). Univ. Kansas Sci. Bull. 49(12):875-988; 160 fig., 13 distribution maps.
- EDMONDS, W. D. 1972. Comparative skeletal morphology, systematics and evolution of the phanaeine dung beetles (Coleoptera:Scarabaeidae). Univ. Kansas Sci. Bull. 49(11):731-874; 317 fig., 3 tables.

Anyone who has tried to get a large manuscript published soon realizes the high costs and the relatively few outlets for such papers. These 2 fine publications are the results of Ph.D. studies at the University of Kansas. The University, particularly those responsible for the publication of the "Science Bulletin", is to be commended for assuring the high quality publication of such fine monographs as these 2 on beetles.—R. E. Woodruff